

PARIS.

Academy of Sciences, February 16.—M. Henri Deslandres in the chair.—G. Humbert: The positive quadratic forms of Hermite in an imaginary quadratic body.—M. Hadamard: Certain solutions of a functional differential equation.—G. Bigourdan: Coordinates, instruments, and work of the Observatory of the Collège de France.—A. Rateau: The greatest range and maximum realisable velocities of aeroplanes.—M. Ciamician was elected a foreign associate in succession to the late Sir William Ramsay, and M. L. Bianchi a correspondant for the section of geometry in succession to M. Volterra, elected foreign associate.—G. Cerf: Remarks on a generalisation of Pfaff's problem.—B. de Fontviolant: Calculation of circular bridges.—D. Pompien: A condition equivalent to monogeneity and the demonstration of the fundamental theorem of Cauchy.—J. Boccardi: A diurnal variation of latitude.—A. Guillet and M. Aubert: An absolute bispherical electrometer. The numerical calculation of its characteristics.—S. Procopiu: Diffraction grating spectra in the case where the incident light is oblique with respect to the principal plane of the lines.—A. Pérard: A method for the comparison and measurement in absolute value of standards with plane ends by an interference method.—Ch. Boulin and L. J. Simon: The action of water on dimethylsulphate.—F. Canac: The determination of the parameters of a crystal by the X-rays.—M. Zeil: The ascending movements of the earth's crust and the evolution of fossil remains.—G. Denizot: The existence of two peneplains in the Paris basin.—P. Guerin and Ch. Lormand: The action of chlorine and various vapours upon plants. After one or two hours' exposure to an atmosphere containing 1/2000 of chlorine, bromoacetone, and other poison gases, most plants resist; they lose their leaves, but new ones appear, and the plants finish their normal growth.—H. Coupin: The production of chlorophyll by plants exposed to a discontinuous light.—J. Amar: The index of respiratory endurance. This is defined as the ratio of the volume of air entering the lungs at each inspiration to the body-weight.—H. V. Vallois: Evolution of the muscle system of the episome in vertebrates.—L. Mercier: Variation of *Corophium volutator* according to its place of origin.—E. Chatton: The existence in Radiolaria of parasitic Periclinians considered as forms of reproduction of their hosts.

Books Received.

The Story of Milk. By J. D. Frederiksen. Pp. xx+188. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd.) 9s. net.

The Handbook of Cyprus. Eighth issue. Edited by H. C. Luke and D. J. Jardine. Pp. xii+300. (London: Macmillan and Co., Ltd.) 12s. net.

A First-Year Physics for Junior Technical Schools. By G. W. Farmer. Pp. x+183. (London: Longmans and Co.) 4s. 6d.

Practical Hardy Fruit Culture. By R. Staward. Pp. 216. (London: The Swarthmore Press, Ltd.) 6s. net.

A First Book of School Celebrations. By Dr. F. H. Haywood. Pp. 167. (London: P. S. King and Son, Ltd.) 5s.

The Chemical Age. June-December, 1919. Pp. xi+750. (London: Benn Bros., Ltd.) 15s.

Mauka Polska Jej Pstrzeby, Organizacja i Rozwój. Tom I. Pp. xvi+558. (Warszawa.) Cena M.P. 15.

The Elementary Differential Geometry of Plane Curves. By R. H. Fowler. Pp. vii+105. (Cambridge: At the University Press.) 6s. net.

The Foundations of Einstein's Theory of Gravitation. By E. Freundlich. Authorised English translation by H. L. Brose. Preface by A. Einstein. Introduction by Prof. H. H. Turner. Pp. xvi+61. (Cambridge: At the University Press.) 5s. net.

Through Deserts and Oases of Central Asia. By Miss Ella Sykes and Brig.-Gen. Sir Percy Sykes. Pp. xii+340. (London: Macmillan and Co., Ltd.) 21s. net.

The Origin and Development of the Compositæ. By Dr. J. Small. Pp. xi+334+6 plates. (London: W. Wesley and Son.) 15s. net.

A Text-book on Machine Drawing for Electrical Engineers. By E. Blythe. Pp. vii+81. (Cambridge: At the University Press.) 20s. net.

La Molécule Chimique. By Prof. R. Lespieau. Pp. iii+286. (Paris: F. Alcan.) 3.50 francs.

L'Unité de la Science. By Prof. M. L. du Sablon. Pp. iii+284. (Paris: F. Alcan.) 3.50 francs.

The Examination of Materials by X-rays. Pp. ii+64. (London: Faraday Society.) 13s. 6d.

The Physiology of Vision: With Special Reference to Colour Blindness. By Dr. F. W. Edridge-Green. Pp. xii+280. (London: G. Bell and Sons, Ltd.) 12s. net.

Diary of Societies.

THURSDAY, MARCH 11.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Lt.-Col. E. Gold: The Upper Air: (ii) Results and their Interpretation.

INSTITUTE OF METALS (at Institution of Mechanical Engineers) (Annual General Meeting), at 4.—Eng. Vice-Admiral Sir George Goodwin: Inaugural Address.

ROYAL SOCIETY, at 4.30.—W. G. Duffield, T. H. Burnham, and A. A. Davis: The Pressure upon the Poles of Metallic Arcs, including Alloys and Composite Arcs.—J. H. Vincent: Further Experiments on the Variation of Wave-length of the Oscillations Generated by an Ionic Valve Due to Changes in Filament Current.—H. A. Daynes: (1) The Theory of the Katharometer; (2) The Process of Diffusion through a Rubber Membrane.

LONDON MATHEMATICAL SOCIETY, at 5.—G. S. Le Beau: A Property of Polynomials whose Roots are Real.—B. M. Sen: Double Surfaces.

ROYAL COLLEGE OF PHYSICIANS, at 5.—Dr. J. L. Birley: The Principles of Medical Science as applied to Military Aviation (Goulstonian Lecture).

ROYAL INSTITUTE OF PUBLIC HEALTH, at 5.—Dr. H. M. Berry: X-rays in the Diagnosis of Tuberculosis.

ROYAL SOCIETY OF MEDICINE (Occasional Lecture), at 5.—Sir Jagadis Bose: Plant and Animal Response (with Demonstrations of Growth by the Magnetic Crescograph).

CHILD-STUDY SOCIETY (at Royal Sanitary Institute), at 6.—Dr. M. Jane Reaney: The Educational Needs of Adolescence.

INSTITUTE OF ELECTRICAL ENGINEERS (at Institution of Civil Engineers), at 6.—W. H. Patchell: Operating a By-product Producer-gas Plant for Power and Heating.—S. H. Fowles: Production of Power from Blast-furnace Gas.

OIL AND COLOUR CHEMISTS' ASSOCIATION (at 2 Furnival Street), at 7.—J. B. Shaw: Various Points in the Manufacture of Lake and Pigment Colours.

OPTICAL SOCIETY, at 7.30.—A. C. W. Aldis: Portable Electric Signalling Lamps.

INSTITUTE OF AUTOMOBILE ENGINEERS (Graduate Section), at 8.—C. A. Chappell: Magnetos.

INSTITUTE OF METALS (at Institution of Mechanical Engineers) (Annual General Meeting), at 8.—Dr. G. D. Bengough, R. M. Jones, and Ruth Pirret: Fifth Report to the Corrosion Research Committee.—R. Seligman and P. Williams: The Action on Aluminium of Hard Industrial Waters.

ROYAL SOCIETY OF MEDICINE (Neurology Section), at 8.30.—Prof. J. S. B. Stopford: Results of End-to-end Suture of Peripheral Nerves.

SOCIETY OF ANTIQUARIES, at 8.30.

FRIDAY, MARCH 12.

INSTITUTE OF METALS (at Institution of Mechanical Engineers) (Annual General Meeting), at 10.30.—J. Neil MacLean: The Art of Casting in High Tensile Brass.—H. Moore and S. Beckinsale: The Removal of Internal Stress in 70:30 Brass by Low-temperature Annealing.—Dr. W. Rosenhain, J. L. Haughton, and Kathleen Binham: Zinc Alloys with Aluminium and Copper.—Dr. W. Rosenhain: A Model for Representing the Constitution of Ternary Alloys.—A. C. Vivian: Tin-Phosphorus Alloys.—W. C. Hothersall and E. L. Rhead: Some Notes on the Effect of Hydrogen on Copper.

INSTITUTE OF METALS (at Institution of Mechanical Engineers) (Annual General Meeting), at 2.30.—W. E. Alkins: The Effect of Progressive Drawing upon some Physical Properties of Commercially Pure Copper.—F. Johnson: The Influence of Cold Rolling on the Physical Properties of Copper.—J. L. Haughton: The Study of Thermal Electro-motive Force as an Aid to the Investigation of the Constitution of Alloy Systems.—H. H. Hayes: The Polishing and Etching of Zinc for Micro-examination.—W. E. Hughes: Idiomorphic Crystals of Electro-deposited Copper.

ROYAL ASTRONOMICAL SOCIETY, at 5.—N. Liapin: Some Remarkable Properties of Diurnal Motion.—H. C. Plummer: The Nature of Short-period Variables.—L. Becker: (1) Capture Orbits; (2) The Capture Hypo-

thesis of Binary Stars.—T. C. Hudson: A Vectorial Theorem.—R. A. Sampson: Theory of the Four Great Satellites of Jupiter.—J. Jackson: The orbits of 20 Double Stars.—H. W. Newton: Note on the Sun-spot and Facular Disturbance in the Region of the Eclipse Prominence of 1919.—A. S. Williams: The Observed Changes in the Colour of Jupiter's Equatorial Zone.—A. R. Hinks: A Preliminary Account of the Geography of the 1922 September 20 Eclipse Track.

PHYSICAL SOCIETY OF LONDON, at 5.—F. W. Newman: Absorption of Gases in a Discharge Tube.—F. S. G. Thomas: A New Directional Hot-wire Anemometer of High Sensitivity, especially applicable to the Investigation of Slow Rates of Flow of Gases.—Dr. Hans Petterssen: Exhibit of a New Micro-balance.

UNIVERSITY COLLEGE ENGINEERING SOCIETY (Annual Public Meeting), at 5.30.—Sir Dugald Clerk: Coal Conservation.

MALACOLOGICAL SOCIETY OF LONDON (at Linnean Society), at 6.

INSTITUTION OF MECHANICAL ENGINEERS (Informal Meeting), at 7.—A. J. H. Fitt and Others: Costing.

JUNIOR INSTITUTION OF ENGINEERS, at 7.30.—F. A. Simpson: Chain Helice Pumps.

HARVEIAN SOCIETY (at the Medical Society of London), at 8.30.—Sir Thomas Horder: The Diagnostic Significance of Nerve Symptoms in Acute Infections (Harveian Oration).

ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—W. W. Rouse Ball: String Figures.

SATURDAY, MARCH 13.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Sir J. J. Thomson: Positive Rays.

MONDAY, MARCH 15.

VICTORIA INSTITUTE (at Central Hall, Westminster), at 4.30.—E. W. G. Masterman: The Walls of Jerusalem at Various Periods.

ROYAL SOCIETY OF MEDICINE (Occasional Lecture), at 5.—Dr. J. Freeman: Toxic Idiosyncrasies: The Relationship between Hay and other Pollen Fevers, Animal Asthmas, Food Idiosyncrasies, Bronchial and Spasmodic Asthmas, etc.

INSTITUTION OF ELECTRICAL ENGINEERS (Informal Meeting) (at Chartered Institute of Patent Agents), at 7.—J. W. Beauchamp and S. M. Hills: Industrial Electric Heating.

ROYAL INSTITUTE OF BRITISH ARCHITECTS, at 8.—H. Austen Hall: The Planning of American Departmental Stores.

SURVEYORS' INSTITUTION, at 8.

ROYAL GEOGRAPHICAL SOCIETY (at Æolian Hall), at 8.30.—Prof. J. L. Myres: The Dodekanese.

TUESDAY, MARCH 16.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. A. Keith: British Ethnology—The Invaders of England.

ROYAL COLLEGE OF PHYSICIANS, at 5.—Dr. J. L. Bir'ey: The Principles of Medical Science as applied to Military Aviation (Goulstonian Lecture).

ROYAL SOCIETY OF MEDICINE, at 5.—(Special General Meeting of Fellows.)

ROYAL STATISTICAL SOCIETY, at 5.15.—M. S. Birkett: The Iron and Steel Trades during the War.

INSTITUTION OF CIVIL ENGINEERS, at 5.30.—Sir Alexander B. W. Kennedy: Lantern Exhibition of Views taken throughout the War Areas in France and Flanders.

INSTITUTION OF PETROLEUM TECHNOLOGISTS (at Royal Society of Arts), at 5.30.—M. A. Ockenden and A. Carter: Plant used in the Rotary System of Drilling Oil Wells.

MINEGEOLOGICAL SOCIETY (at Geological Society), at 5.30.—A. Russell: The Occurrence of Cornuine, Angle-ite, Leadhillite, and Galena on Fused Lead from the Wreck of the Fireship *Fire-rands*, Falmouth Harbour, Cornwall.—W. Campbell Smith: Riebeckite-rhyolite from Northern Kordofan.—Dr. G. T. Prior: The Meteoric Iron of Mount Ayliff, Griqualand East, South Africa.

ZOOLOGICAL SOCIETY OF LONDON, at 5.30.—R. I. Pocock: The External Characters of South American Monkeys.—Dr. C. F. Sonntag: The Comparative Anatomy of the Tongues of the Mammalia: I. General Description of the Tongue.

ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN (Lantern Meeting), at 7.—Maj.-Gen. W. S. Brancker: Bird's-Eye Views of London and other Districts in England from Aeroplane Photographs.

ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.15.—N. W. Thomas: The Ovia Secret Society (Illustrated by Lantern Slides and Phonograph Record).—Surg.-Lt. R. Buddle: Exhibition of Flint Implements from Russia.

WEDNESDAY, MARCH 17.

ROYAL UNITED SERVICE INSTITUTION, at 3.—Major H. F. S. Huntington: The Physical and Ethical Value of Boxing.

ROYAL SOCIETY OF ARTS, at 4.30.—W. W. Beaumont: Street Passenger Transport of London.

ROYAL METEOROLOGICAL SOCIETY (at Royal Astronomical Society), at 5.—Capt. C. K. M. Douglas: Clouds as seen from an Aer-plane.

INSTITUTION OF ELECTRICAL ENGINEERS (Wireless Section) (at Institution of Civil Engineers), at 6.—Capt. P. P. Eckersley: Duplex Wireless Telephony: Some Experiments on its Application to Aircraft.

ROYAL AERONAUTICAL SOCIETY (at Royal Society of Arts), at 8.—Major C. F. Abell: Airship Machinery.

ROYAL MICROSCOPICAL SOCIETY, at 8.

THURSDAY, MARCH 18.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Stephen Graham: The Spirit of America after the War.

ROYAL SOCIETY, at 4.30.—*Probable Papers*.—W. B. Brierley: A Form of *Botrytis cinerea* with Colourless Sclerotia.—R. R. Gates: A Preliminary Account of the Meiotic Phenomena in the Pollen Mother Cells and Tapetum of Lettuce (*Lactuca sativa*).

LINNEAN SOCIETY, at 5.

ROYAL COLLEGE OF PHYSICIANS, at 5.—Sir John R. Bradford: The Clinical Experiences of a Physician during the Campaign in France and Flanders, 1914-1919 (Lumleian Lecture).

INSTITUTION OF MINING AND METALLURGY (at Geological Society), at 5.30.—W. R. Jones: Tin and Tungsten Deposits: The Economic Significance of their Relative Temperatures of Formation.

INSTITUTION OF ELECTRICAL ENGINEERS (at Institution of Civil Engineers), at 6.—Adjourned Discussion on the Papers of W. H. Patchell and S. H. Fowles read at the Meeting on March 11.

CHEMICAL SOCIETY, at 8.—I. Masson and R. McCall: The Viscosity of Nitrocellulose in Mixtures of Acetone and Water.—H. Stephen, W. F. Short and G. Gladding: The Introduction of the Chloromethyl Group into the Aromatic Nucleus.—H. E. Cox: The Influence of the Solvent on the Velocity of Reaction between certain Alkyl Iodides and Sodium β -Naphthoxide.—H. Crompton and P. L. Vanderstichele: The Use of 1:2-Dichlorovinylethyl Ether for the Production of Chloroacetates and Acid Chlorides.

FRIDAY, MARCH 19.

ROYAL SOCIETY OF ARTS (Indian Section), at 4.30.—Sir William S. Meyer: The Indian Currency System and its Development.

CONCRETE INSTITUTE, at 6.—Dr. O. Faber: The Practical Application of Reinforced Concrete.

INSTITUTION OF MECHANICAL ENGINEERS, at 6.—D. Brownlie: Exact Data on the Performance of Mechanical Stokers, as applied to "Lancashire" and other Narrow-flued Boilers.

ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—E. McCurdy: Leonardo da Vinci.

SATURDAY, MARCH 20.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Sir J. J. Thomson: Positive Rays.

PHYSIOLOGICAL SOCIETY (at University College), at 4.—J. F. Donegan and Others: Innervation of Veins.

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